2023
Missouri Wild Turkey Harvest and Population Status Report

Missouri Department of Conservation
Science Branch

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Population Status

Wild Turkey Productivity Regions
Missouri Department of Conservation

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1. Figure showing the harvest trend in the Lindley Breaks region of Missouri.

Figure 1. Turkey Productivity Regions in Missouri. Regions consist of counties grouped by similar land cover composition.

Lindley Breaks Region

Turkey abundance in the Lindley Breaks Region peaked in the early 2000s before declining about 30% from 2001-2009. Abundance stabilized from 2010-2015 before declining sharply from 2016-2018. Harvest has increased each of the last three years. The current five-year trend shows an increasing population, while the 10-year trend shows a stable population in the Lindley Breaks Region.

Spring Turkey Harvest: Lindley Breaks
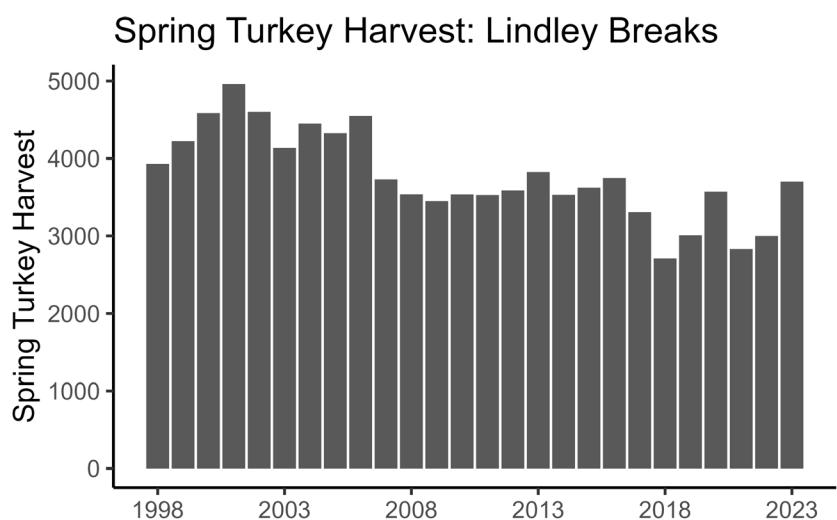
Mississippi Lowlands Region

The turkey population in the Mississippi Lowlands Region has increased during the 2000s. However, turkey abundance in this region has always been low compared to the other regions, and because of this, harvest tends to vary greatly on an annual basis. The five- and ten-year trends inicate an increasing population in the Mississippi Lowlands Region.
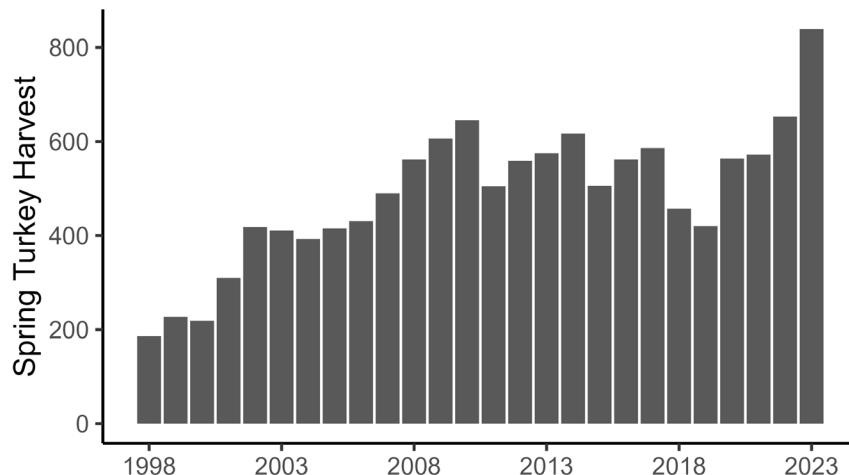
Northeast Region

The Northeast Region experienced six consecutive years of poor production, leading to a roughly 40% decline in abundance during the late 2000s. However, improved production in 2011 and 2014 caused abundance to increase and stabilize. Harvest did decline from 2016-2018 but has increased in recent years. The five-year trend indicates a stable population, while the picture looking back over ten years shows a slight decline in the Northeast Region.
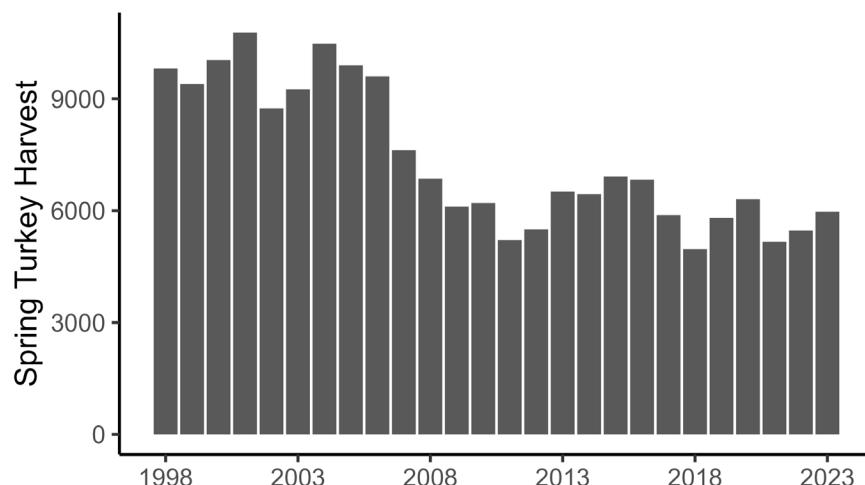
Northwest Region

The Northwest Region experienced a sharp decline in abundance in the late 2000s due to poor production. Abundance appeared to stabilize from 2011-2015, and after a decline in harvest from 2017-2018, harvests in recent years have stabilized. The five- and 10-year spring turkey harvest trends in the Northwest Region indicate a stable population.
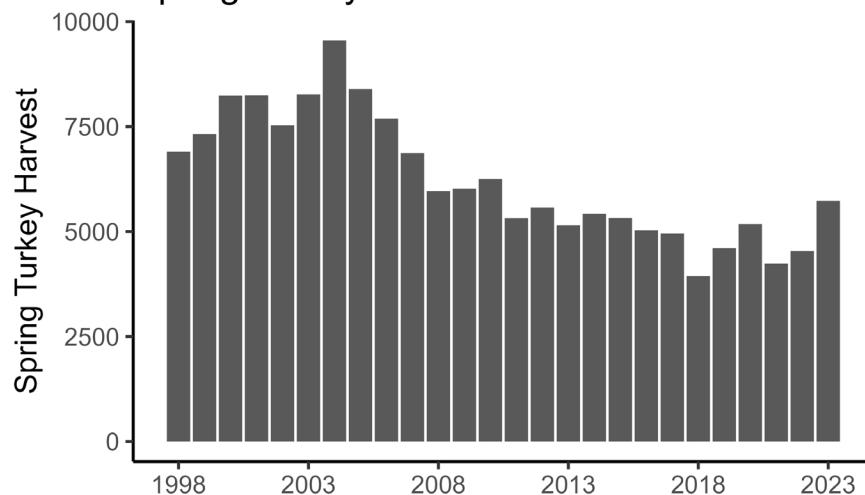
Ozark Border Region

Turkey abundance in the Ozark Border Region peaked in the early 2000s before declining during the mid-to-late 2000s. Abundance increased from 2011-2016 before sharply dropping from 2016-2018. Harvest numbers took another downturn in 2021 with a modest increase in 2022. The five- and ten-year spring turkey harvest trends in the Ozark Border Region indicate a declining population.

Spring Turkey Harvest: Ozark Boarder
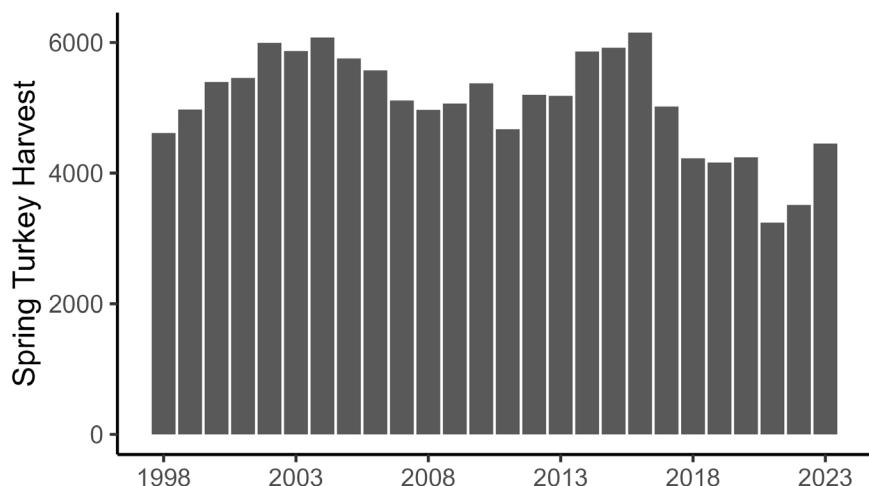
Ozarks East Region

The turkey population in the Ozarks East Region declined during the late 2000s, but after several years of improved production, abundance increased from 2011-2015. The harvest declined again from 2016-2018 and after a few years of reletive stability, declined again in 2021 and 2022. 2023 was a year of good harvest in the East Region. The five-year harvest trend is stable while the ten-year trend indicates a declining population.

Spring Turkey Harvest: Ozarks East
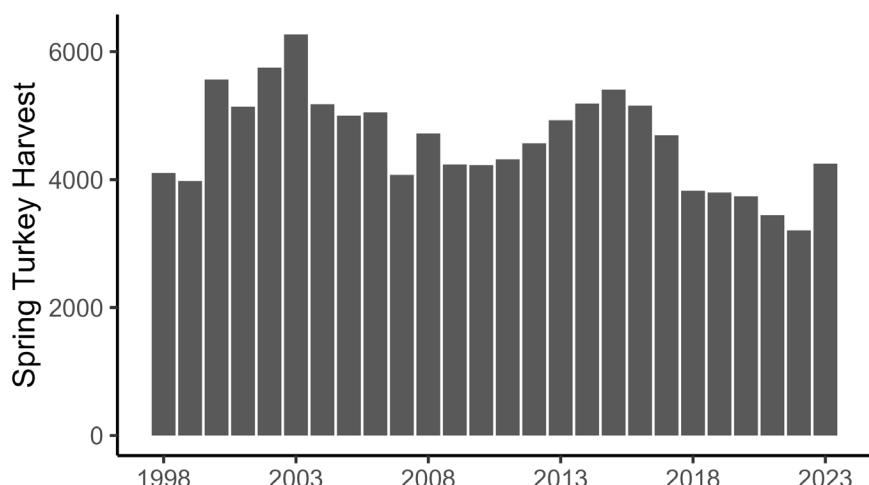
Ozarks West Region

Turkey abundance in the Ozarks West Region peaked in the early 2000s, followed by sharp declines during the mid-to-late 2000s. Improved production resulted in an increasing trend in spring harvest from 2011-2016. The harvest declined again from 2016-2018 but has leveled-off in recent years. 2023 was a good year in the Ozarks West, where harvest returned to a level seen during the mid-2010s. The five-year trend indicates an increasing population, while the ten-year trend is stable.

Spring Turkey Harvest: Ozarks West

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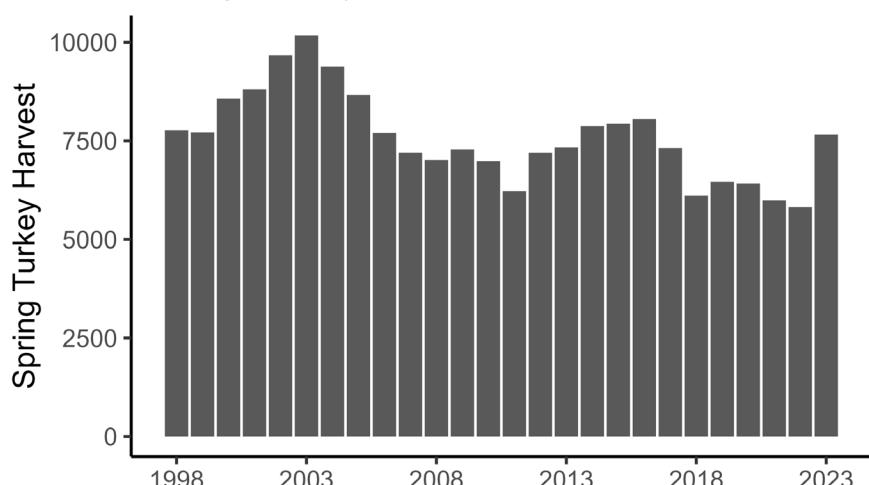
Union Breaks Region

Turkey abundance in the Union Breaks Region peaked in the early 2000s. Abundance gradually declined during the mid-to-late 2000s and was stable from 2009-2017. After a sharp decline in harvest during 2018, harvest has increased during the past couple of years. The five-year trend shows an increasing population while the ten-year trend shows stability in the Union Breaks Region.
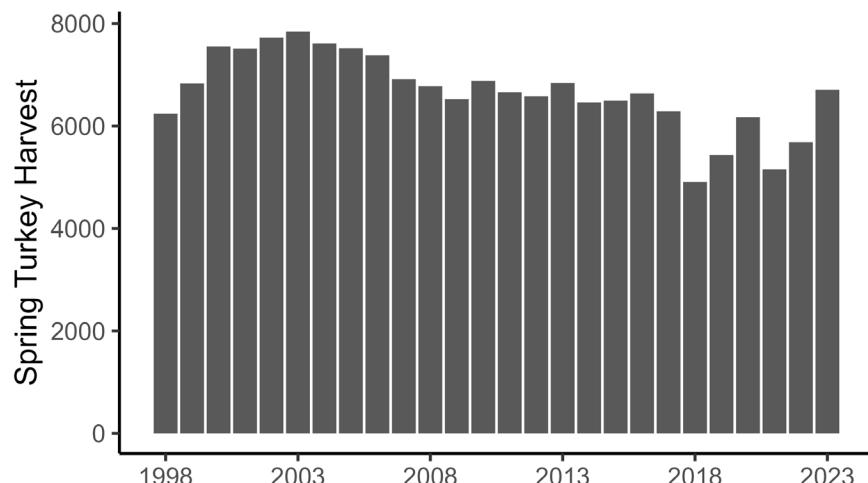
West Prairie Region

The West Prairie Region turkey population peaked in the early-to-mid 2000s, and after declining from 2006-2009, abundance increased from 2010-2015. Harvest did decline from 2016-2021 but did tick up in 2022 and 2023. The five- and ten-year spring turkey harvest trends in the West Prairie Region indicate declining abundance.
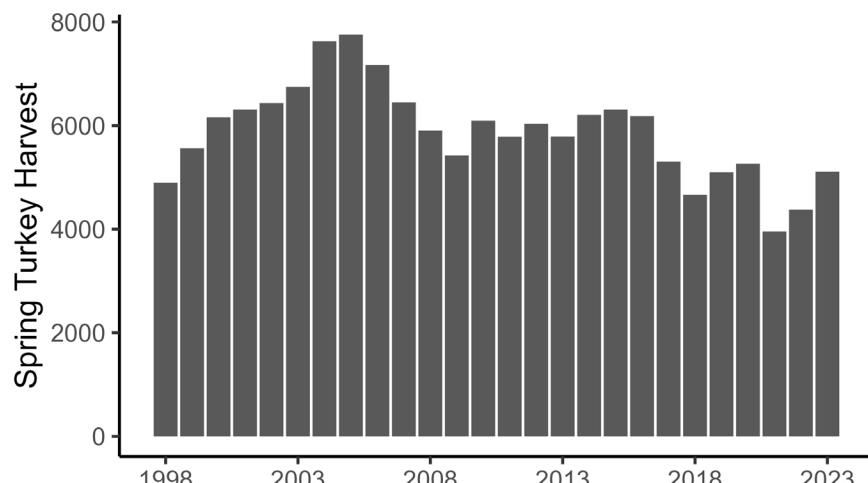
PRODUCTION – WILD TURKEY BROOD SURVEY

The Missouri Department of Conservation (MDC) has been conducting a Wild Turkey Brood Survey annually since 1959. During the survey, Department staff and citizen volunteers record observations of hens, poults, and gobblers during June, July, and August. Turkey sightings are recorded on observation cards, which the MDC mails to participants at the beginning of each survey month. By recording observations of hens and poults, survey participants provide information that serves as an index to turkey production. It is through this survey that the MDC determines the success of each year's turkey hatch. Turkey observations are collected at the county-level and analyzed by Turkey Productivity Region (**Figure 1**), which are counties grouped by similar land cover composition. Conservation Department staff determines the percentage of hens observed with and without poults, and the average number of poults per hen for those hens observed with a brood. Observations of hens and poults are used to determine the poult-to-hen ratio (PHR), which is the average number of poults per hen. The PHR includes observations of hens with a brood and those observed without a brood.

In 2023, MDC staff and citizen volunteers recorded observations of over 78,000 turkeys during the three-month survey. The 2023 statewide poult-to-hen ratio (PHR) was 1.4, which was 46% greater than the 2022 PHR and 43% greater than the previous five-year average (Figure 1, Figure 2, Table 1). This year's PHR was also 30% greater than the 10-year average and 19% greater than the 20-year average (Table 1). Regional PHRs in 2023 ranged from 1.2 in the West Prairie Region to 2.6 in the Mississippi Lowlands Region (Figure 1, Table 1). Production in 2023 was greater in every region of the state compared to the five-, ten- and 20-year averages; the lone exception being in the Lindely Breaks region, where the 20-year average was slightly higher than the 2023 figure (Table 1).

At the statewide scale, 45% of hens were observed with a brood, which was up from 38% in 2022 (Table 2). The percentage of hens observed with a brood ranged from 40% in the Northwest Region to 74% in the Mississippi Lowlands Region (Table 2). Statewide, the average number of poults per brood was 4.4, which was up from 3.8 in 2022 (Table 2). The average number of poults per brood ranged from 3.9 in the West Prairie Region to 5.0 in the Ozarks East Region (Table 2).

Table 1. Index (poult-to-hen ratio) of Missouri wild turkey production by Turkey Productivity Region (**Figure 1**). Data were obtained during the Conservation Department's Wild Turkey Brood Survey in 2023 and are compared to the previous year and the average for periodic intervals.

Productivity Region	2022 Index	1-Year (2021) Change	5-Year (2017-2021) Change	10-Year (2012-2021) Change	20-Year (2002-2021) Change
Lindley Breaks	1.3	10%	15%	5%	-3%
MS Lowlands	2.6	8%	43%	72%	43%
Northeast	1.5	10%	22%	22%	13%
Northwest	1.3	33%	11%	3%	3%
Ozark Border	1.3	45%	64%	31%	19%
Ozarks East	2.2	176%	141%	81%	55%
Ozarks West	1.3	30%	43%	29%	7%
Union Breaks	1.5	43%	48%	34%	14%
West Prairie	1.2	97%	78%	56%	25%
Statewide[a]	**1.4**	**46%**	**43%**	**30%**	**19%**

[a]Statewide totals include observations where Productivity Region was not recorded on the survey form.

Table 2. Data obtained during the Missouri Department of Conservation's Wild Turkey Brood Survey, listed by Turkey Productivity Region (**Figure 1**), 2022.

Productivity Region	% Hens w/ Brood	Average Brood Size	Poult-to-Hen Ratio	Gobbler-to-Hen Ratio
Lindley Breaks	42%	4.1	1.3	0.5
MS Lowlands	74%	4.8	2.6	1.9
Northeast	43%	4.7	1.5	0.6
Northwest	40%	4.2	1.3	0.7
Ozark Border	43%	4.4	1.3	0.8
Ozarks East	42%	5.0	2.2	0.3
Ozarks West	43%	4.5	1.3	0.6
Union Breaks	47%	4.3	1.5	0.6
West Prairie	46%	3.9	1.2	0.3
Statewide[a]	**45%**	**4.4**	**1.4**	**0.6**

[a]Statewide totals include observations where Productivity Region was not recorded on the survey form.
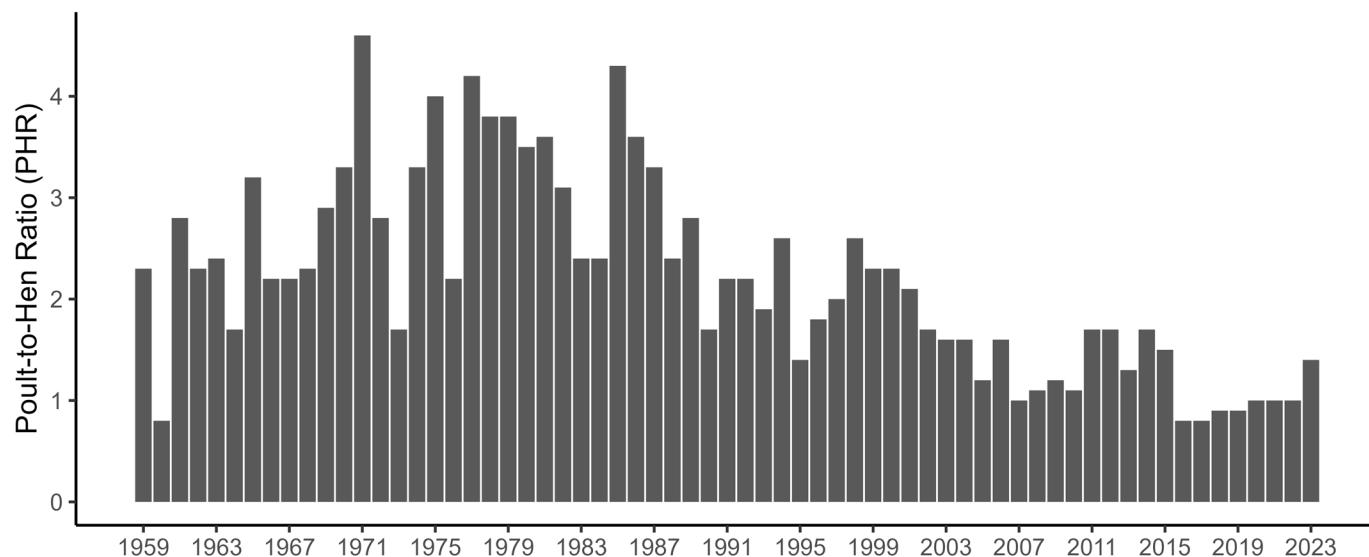
Figure 2. Missouri statewide poult-to-hen ratios derived from the Wild Turkey Brood Survey conducted in June, July, and August, 1959-2023.

HARVEST

2023 Spring Turkey Season

During the 2023 youth spring turkey season, which took place April 1-2, hunters harvested 2,550 turkeys. This harvest total represented a 12% decrease from the 2022 youth season but was in line with the previous five-year average youth season harvest total. In 2023, a total of 15,550 youth permits were sold which included 15,069 resident youth and 854 non-resident youth permits. The total number of youth permits sold in 2022 was nearly identical to the number sold in 2021.

During the 2022 regular spring turkey season, which took place April 17 – May 7, hunters harvested 41,966 turkeys. This harvest total represented an 23% increase from the 2022 regular season. Juvenile male turkeys represented 16% of the regular season harvest, which was 9% lower than the previous five-year average (**Figure 3**). The total 2022 spring

turkey harvest, including both the youth and regular seasons was 44,516 (**Figure 4**). This harvest total was 23% higher than the 2022 harvest total and 19% higher than the previous five-year average. Harvest was concentrated in the middle of the state, with areas in the northwest, southwest and southeast seeing lower harvest (**Figure 5**).

Total permit sales for the 2023 spring turkey season (102,201; excluding no-cost landowner permits) were 3% higher than in 2022 and 1% higher than the previous five-year average (**Figure 4**). Spring turkey permit sales in 2023 included 92,757 (91%) resident permits and 9,4444 (9%) nonresident permits. An additional 21,642 no-cost permits were distributed to landowners. The total number of unique spring turkey hunters in Missouri in 2023 was 121,258. The number of spring turkey hunters in 2023 was 2% more than in 2022 and 3% lower than the previous five-year
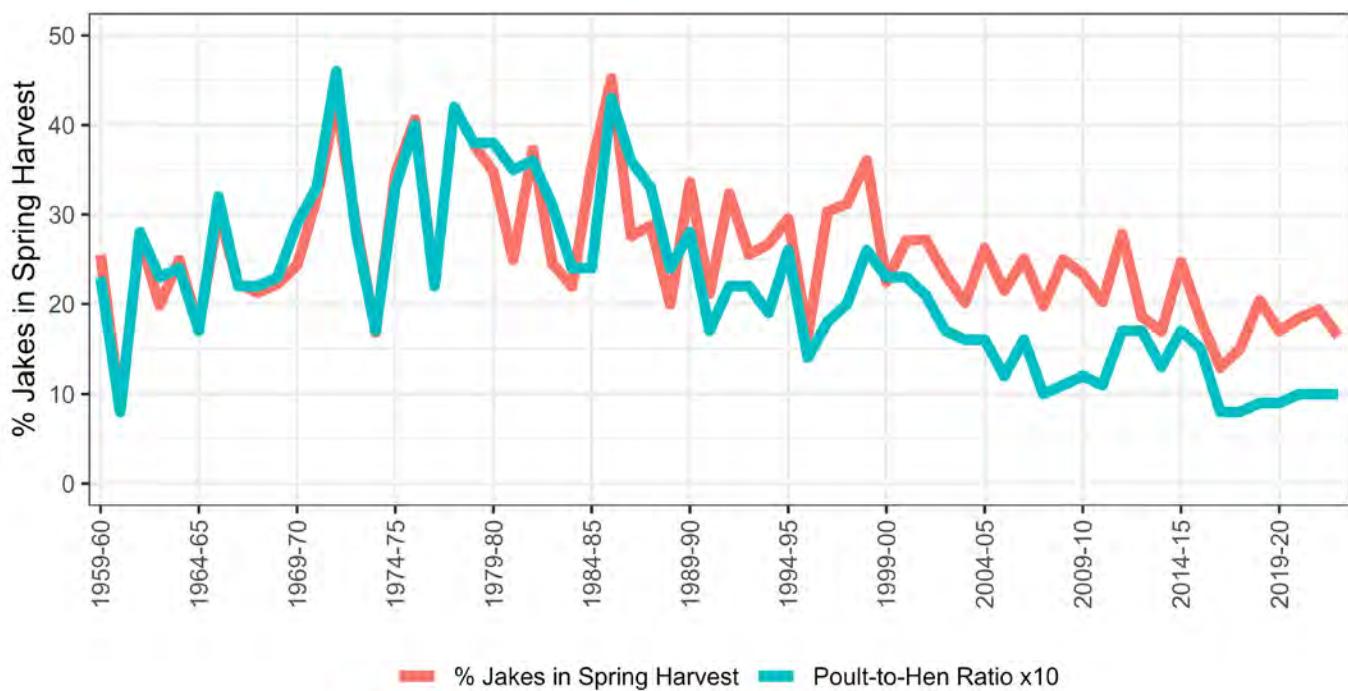
Figure 3. Missouri's statewide poult-to-hen ratio multiplied by 10, compared with the percentage of jakes in the following year's regular season spring harvest, 1959-2023.
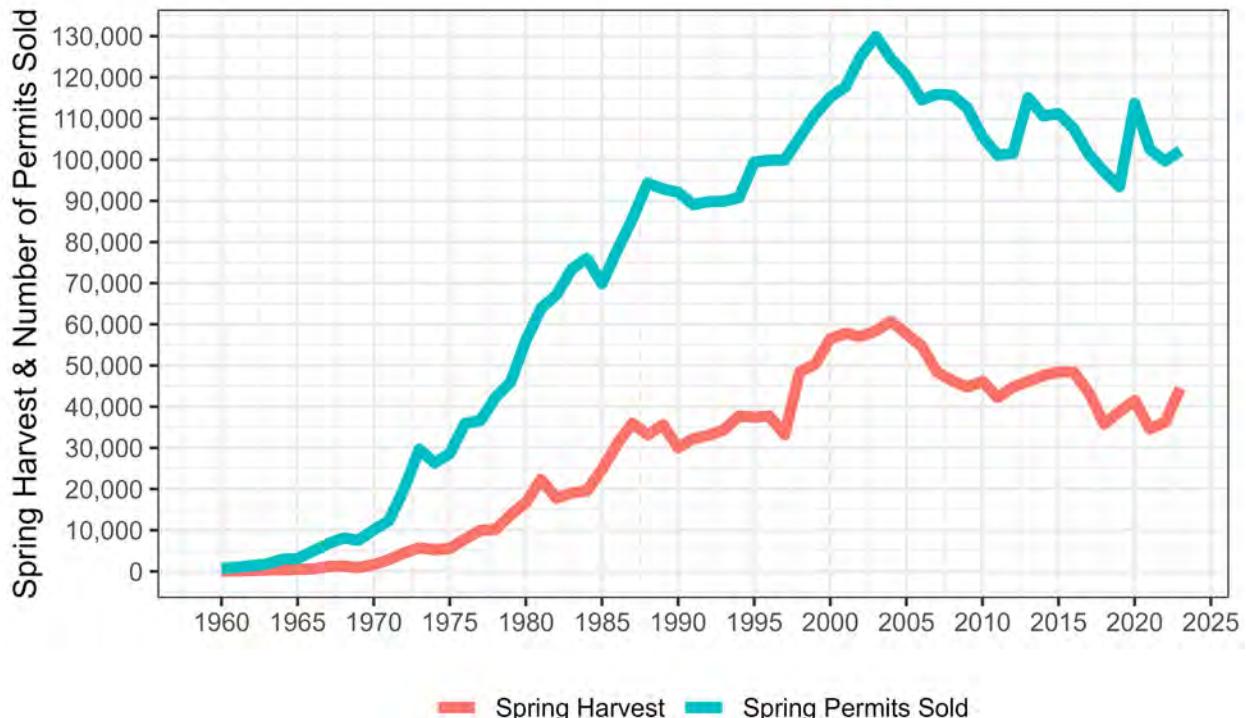
Figure 4. Number of wild turkeys harvested during the spring season (youth and regular season) in Missouri and the number of turkey hunting permits sold for the spring season, 1960-2023. Permit sales do not include no-cost landowner permits.
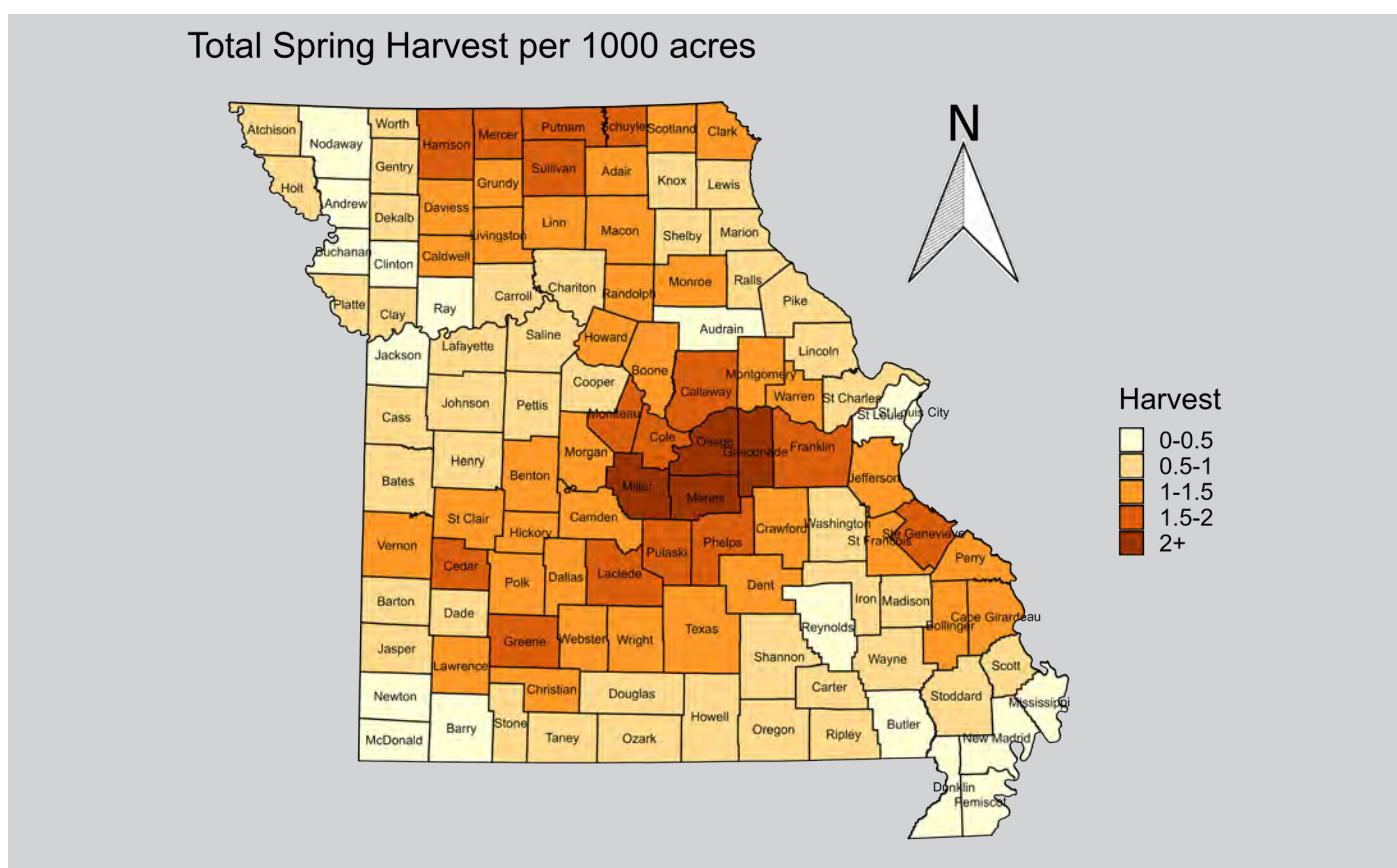
Figure 5. Total (youth and regular season) spring wild turkey harvest in Missouri, 2023.

2022 Fall Firearms Turkey Season

The 2022 fall firearms turkey harvest total of 1,711 was 7% lower than the 2021 harvest total and was 22% below the previous five-year average (**Figure 6**). Most fall firearms harvest occurs south of the Missouri River, though areas in North Central Missouri see above average harvest as well (**Figure 7**). Permit sales for the fall firearms season (n = 12,043) were nearly identical to the number sold in 2021. There is, however, a long-term declining trend in fall firearms turkey hunting participation in Missouri.
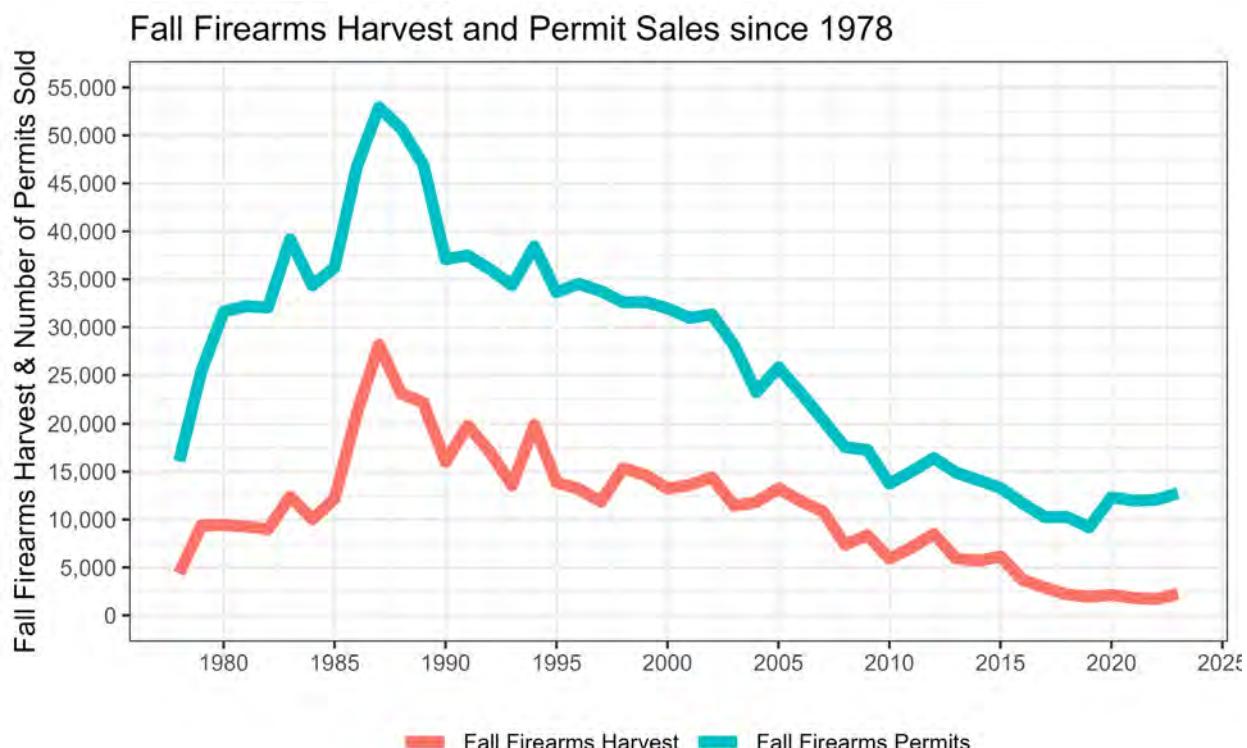
Figure 6. Number of wild turkeys harvested during the fall firearms turkey season in Missouri and the number of fall firearms permits sold, 1978-2022. Permit sales do not include no-cost landowner permits.
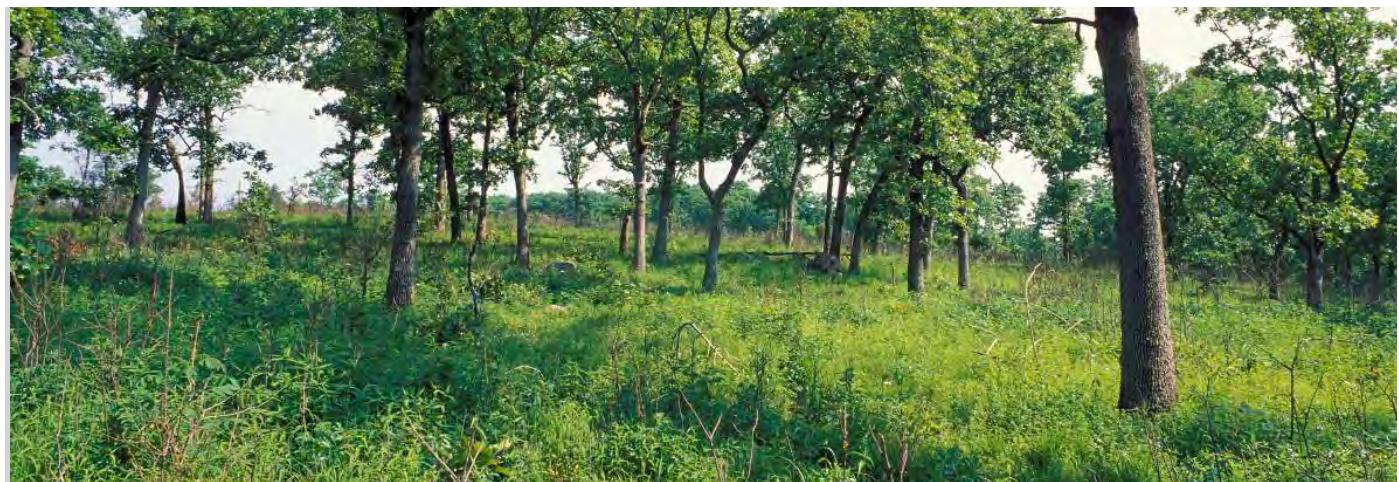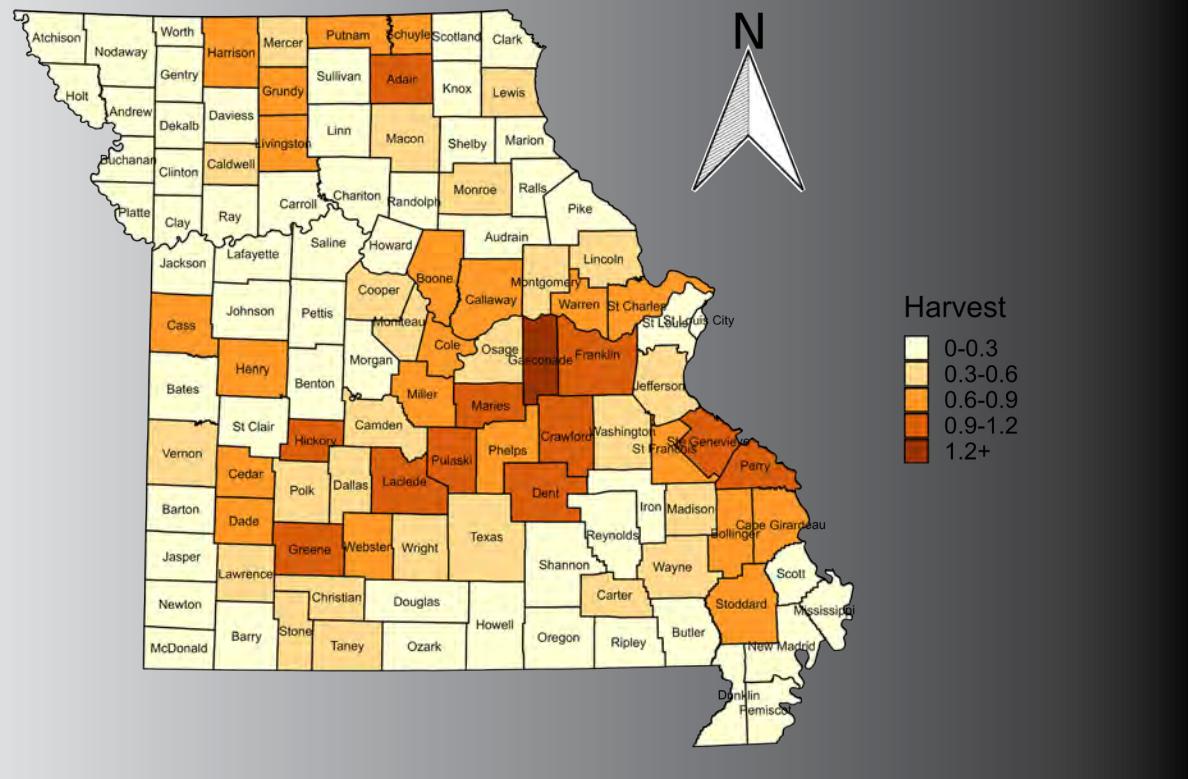
Figure 7. Missouri fall firearms wild turkey harvest, 2022.

2022 Fall Archery Turkey Season

Hunters harvested 2,446 turkeys during the 2022 fall archery deer and turkey season (**Figure 8**). The 2022 archery turkey harvest total was 3% less than the 2021 harvest total and 1% lower than the previous five-year average. Unlike the fall firearms turkey harvest, which has shown a declining trend since the late 1980s, the fall archery harvest increased steadily until the mid-2000s. Since 2005, annual archery turkey harvests have fluctuated but show a stable to slightly declining trend, overall. The poor production in 2016 and 2017 likely resulted in low harvest in the proceeding years, with 2020 being a deviation from that trend. In 2020, 156,342 fall archery hunting permits were sold, the highest number since the season's inception, while permit sales numbers were down slightly from that high point the last two years, the 2022 sales figure (151,407 permits sold) was still 10% higher than the five-year average (**Figure 8**). Archery harvest is well distributed across the state (**Figure 9**). This may be attributed to opportunistic take by hunters who are primarily targeting white-tailed deer.
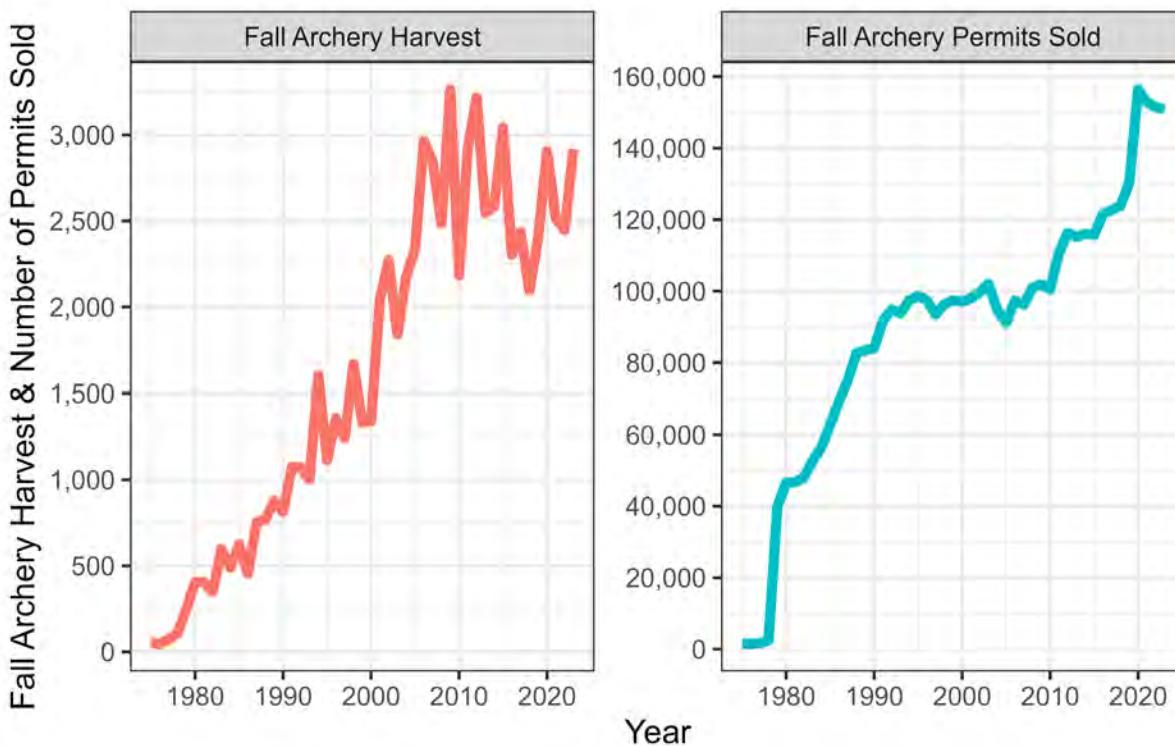
Figure 8. Missouri fall archery permit sales, 1975-2022, compared to fall archery turkey harvest 1975-2022. Permit sales do not include no-cost landowner permits. In 1979, the archery deer and archery turkey permits were combined into one permit.
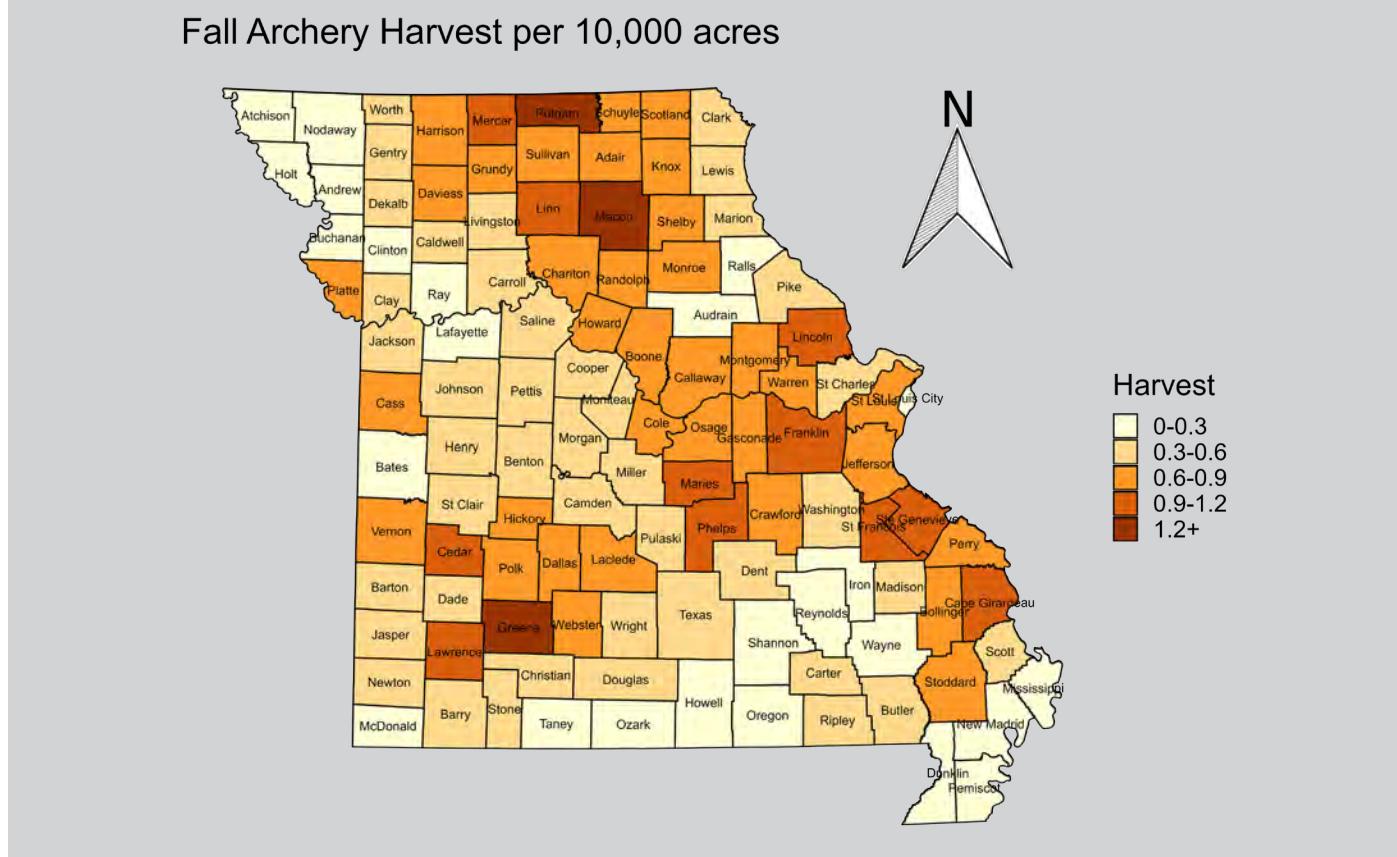
Figure 9. Wild turkey harvest in Missouri during the 2022 fall archery season.

Hunting Incidents

There were two hunting incidents during the 2022 spring turkey season, one fatal and one non-fatal. The number of spring turkey hunting incidents in Missouri has declined considerably over the course of the last three decades. During the late 1980s, more than 30 incidents occurred annually for every 100,000 permits sold. During the last five hunting seasons, the average number of incidents per 100,000 permits sold is 1.2 (**Figure 10**).
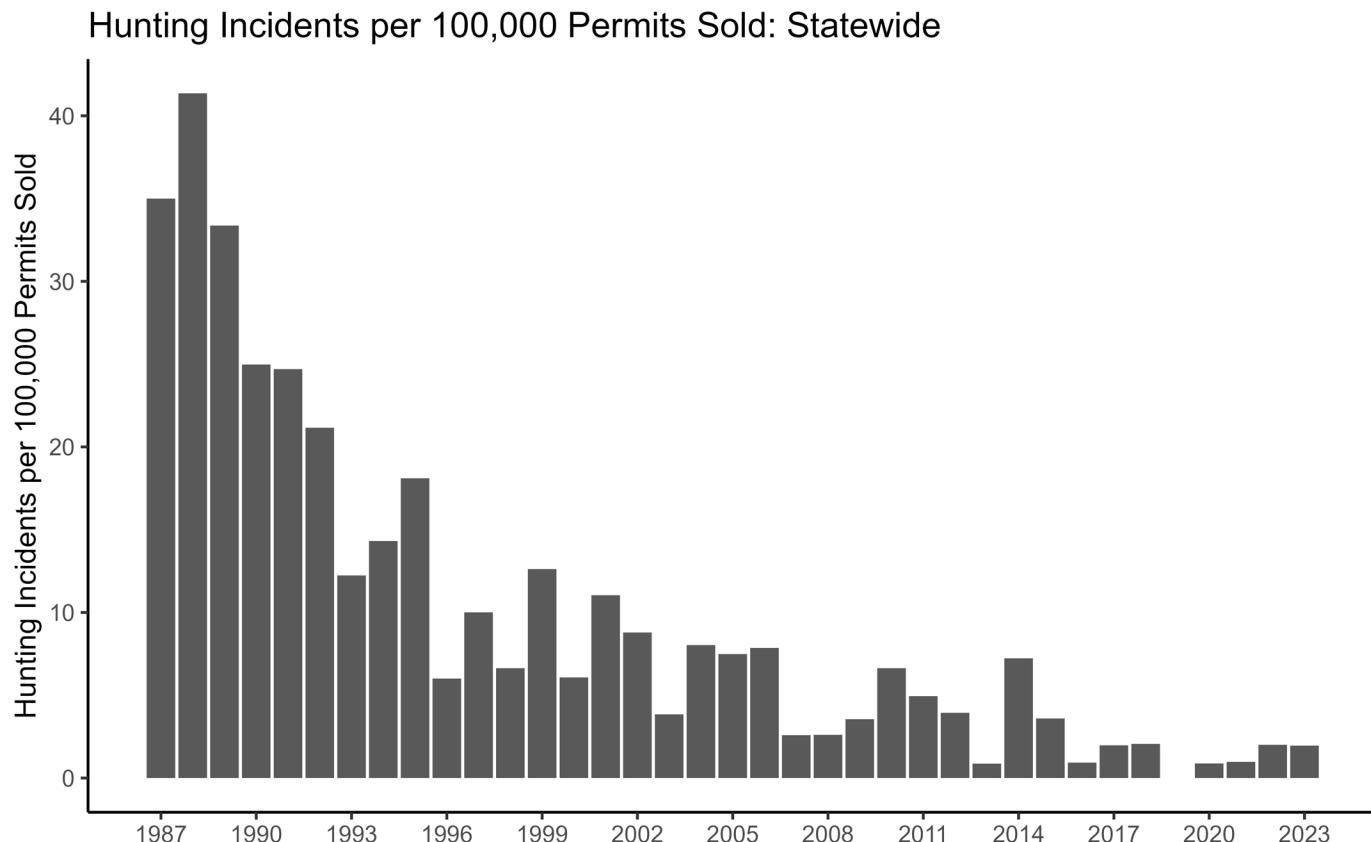
Figure 10. Hunting incidents during the spring turkey season in Missouri per 100,000 permits sold, 1987-2022.

Recent Regulation Changes

Other than changes to some Conservation Area regulations and managed spring turkey hunts, no turkey hunting regulation changes occurred in 2023.

Factors Influencing Wild Turkey Nest Success and Poult Survival in North Missouri Research Project

Overview

Wild turkey production has exhibited a long-term declining trend, with recent hatches being especially poor. Nest success and poult survival rates from the previous north Missouri study were lower than many previously reported estimates from the literature, and the poult-to-hen ratios calculated from the summer brood survey during the past 4 years are some of the lowest in the state's history. Because of low recruitment, turkey abundance in Missouri could be at its lowest level in decades, generating concern about long-term population viability. Density dependence, large-scale landscape change, changing weather patterns, decreasing insect abundance, and increasing populations of some mesocarnivores could be adversely affecting turkey production. Since these factors have traditionally been studied in isolation, there is an incomplete understanding of how these factors are affecting turkey populations. Improving our understanding of factors affecting turkey nest success and poult survival would provide important information when communicating about declining turkey production and abundance with concerned stakeholders. This information would also inform habitat management efforts on public and private lands in Missouri to increase turkey recruitment and ultimately abundance.

Objectives of this five- and one-half-year cooperative research project with the University of Missouri include:

1. Determine the most effective method of attaching radio-transmitters to turkey poults.
2. Determine how weather (temperature and precipitation), landscape characteristics, predator densities, and their interactions affect turkey nest success.
3. Determine how weather (temperature and precipitation), landscape characteristics, predator densities, and invertebrate abundance affect poult survival, and identify the main causes of poult mortality.
4. Assess turkey brood-rearing habitat selection and determine habitats where turkeys and predators are most likely to interact.

To investigate poult survival and cause-specific mortality, we will deploy Very High Frequency (VHF) radio transmitters onto wild turkey poults. To reduce the potential of researcher-induced poult mortality, we will determine the least invasive and most effective technique for transmitter attachment by testing two methods—glue-on and suture—on captive turkey poults prior to the first field season.

To investigate turkey nest success, poult survival, and brood-rearing habitat selection, we will deploy Global Positioning System-Acceleration-Ultra High Frequency (GPS-ACC-UHF) transmitters on wild turkey hens. Translating ACC data into behavior requires known instances of acceleration attributed to specific behaviors. Thus, we plan to deploy GPS-ACC-UHF tracking devices on captive turkey hens and film >100 instances of common behaviors (e.g., feeding, walking, resting/stationary). We will be able to use the information gathered from the captive turkey hens to determine where, when, and how often wild turkey hens are engaging in specific behaviors.

Field work for this project will cover four nesting and brood-rearing seasons (to capture annual variability in covariates), and work will be conducted in Putnam County, Missouri. Hens will be monitored for productivity and poults will be monitored for survival. Wild turkey nest and poult predators will be monitored for occupancy and density. We will evaluate the effects of habitat, weather, and food availability on turkey reproduction by conducting vegetation surveys, collecting temperature and precipitation data, and collecting insects at systematic locations throughout the study area.

Project Update

In late summer and fall of 2020, researchers at the University of Missouri and MDC constructed an aviary at the University of Missouri's South Farm Research Center. The aviary was designed to house heritage breed domestic poults and hens during the captive trials portion of the project. Eight broods of at least nine heritage breed domestic poults were obtained within 48 hours of hatching. Within each brood, three poults were fit with a VHF radio transmitter that was attached using a glue-on method, three poults were fit with a VHF transmitter that was attached using a suture method, and at least three poults were not fit with a transmitter (control group). The broods were monitored daily for survival, growth, and transmitter retention. The suture method proved to be the most effective method of transmitter attachment during this captive trial.

After the poult captive trial was complete, the research team obtained three heritage breed domestic turkey hens. These hens were fit with the same GPS-ACC-UHF transmitters that would be placed on wild turkey hens that winter. The research team recorded over 40 hours of video of the hens performing various behaviors—foraging, walking, preening, etc. The timing of the video recording, when matched up with the timing of ACC data collection, will allow the research team to translate the ACC data signatures into behaviors. This was an important data collection step, as it will allow the research team to convert ACC data collected from wild turkey hens into known behaviors. This will allow the research team to determine where, when, and for how long wild turkey hens are engaging in certain activities—seeking shelter/cover, foraging for food, etc.—which will be important for evaluating brood-rearing habitat selection.

In 2021, 51 hens were tagged, and 46 survived the entire field season. About 80% of the tagged hens incubated a nest and 15% attempted a renest following a failure. The median nesting incubation date in 2021 was 15-May. Of the 39 nests that reached the incubation stage, eight of the initial nest attempts hatched (21%) and one of four renests was successful (25%). Note that because wild turkeys do not start continuously incubating nests until the entire clutch is laid, it can be difficult to identify nest attempts that fail prior to incubation. Thus, it is possible that some nest attempts may have gone undetected if the nest failed during the laying stage. In 2021, brood capture was largely a failure with only one poult from one brood receiving a tag.

Trapping in 2022 was a challenge but by the end of the season 23 hens were captured and tagged. Combined with surviving hens from the 2021 season, a total of 62 hens were available at the start of the 2022 field season. At the time of nesting 47 hens were alive, 40 of which reached nest incubation (about 85%) and nine renests were attempted. Of 50 total nest attempts, 20% were successful, a decrease of 4.5% from 2021. Nest initiation rates were up 6.5% and renesting rates were up 4.5% from 2021. Success of first nest attempts were up 9% from last year, but only 1 in 9 (11.1%) second nests were successful in 2022 vs 1 in 4 (25%) in 2021. Median data at which hens began incubating initial nesting attempts was 6 days later than in 2021.

Due in large part to the use of infrared units, poult captures were much more successful in 2022 compared to 2021. Altogether, 38 poults were captured from 10 broods. Of those 38 poults, 10 survived the 28-day monitoring period and 13 were lost to predators. The ultimate fates of the remaining poults were unknown either because we lost contact with the transmitter before the end of the 28-day period or the tag was recovered separated from the poult but there was no evidence of predation.

Nest site selection in 2021 was heavily skewed towards open fields (n = 26), compared to forested habitat (n = 17). In open habitat, 12% of nests were successful compared to 41% success in forested landscapes. In 2022, the total nests and successful nests were very similar between the two broad habitat categories. Forested areas hosted 24 nests, of which 21% were successful compared to the 26 nests, 19% success rate, in open habitat types.

The team is conducting a mark-recapture effort of raccoons and opossums at sites across the county to determine how nest predator densities vary by land cover type (i.e., larger tracts of forest versus more open, agriculturally dominated areas). The team has deployed trail cameras with scent stations across the county to determine occupancy of larger poult predators (i.e., coyote, fox) in different land cover types. The team has also deployed weather stations to monitor variation in precipitation and temperature across the area. Vegetation surveys are being conducted at nest sites, at foraging sites used by hens with broods, and at random sites around the area. These surveys will allow the team to determine if vegetative cover influences whether a nest successfully hatches and what sorts of vegetation hens with broods are selecting for versus what is available in the area. The team is also collecting insect samples at the foraging sites used by hens with broods and the random sites to determine which land cover types provide the most food for poults.

Left: Researchers from the University of Missouri capture day-old wild turkey poults in order to attach UHF transmitters to them. This allows the researchers to track their movements and more quickly respond to a mortality event.

Right: Researchers attach a leg band to an adult turkey in an effort to monitor harvest demographics.

Left: Researchers from the University of Missouri and MDC carefully attach a battery-powered GPS-ACC-UHF transmitter to a wild turkey hen captured in Putnam County during February 2021.

Male Harvest Rate Estimation Project

To improve a statistical population reconstruction (SPR) model, via the inclusion of auxiliary studies, MDC is capturing and banding male turkeys in two different turkey productivity regions—regions with high interspersion of forested and open habitats—and monitoring the band returns. During the 2021-2022 winter, 76 males were banded altogether. Half of the banded birds were adults and half were juvenile birds. In 2022, 117 males were banded, 56 adults and 61 juveniles. Of the 193 total males banded, 40 have been reported as harvested, eight of which were jakes, thus far. One more season of banding is approved, more may be possible if necessary.

Hunter Reported Fall Harvest Demographics Project

Like the male harvest rate estimation study, the harvest demographic study is designed to reduce uncertainty in the SPR model. Hunters had the option to opt into the study while securing permits (regular or no-cost landowner permits). Participants were asked to submit the 9th and 10th primary wing feathers and 3-5 breast feathers from birds harvested during the 2022 fall turkey season, both firearms and archery portions. From those feather samples, the turkey program assistant identified the true age and sex from birds and compared those results to what the hunter submitted via telecheck. Efforts were made to avoid describing the project in detail to avoid biasing the sample, though information on how to correctly age and sex turkeys in the fall is, and has been, readily available on the MDC website.

During the first year 291 viable samples were submitted. Overall accuracy across all age and sex classes was 63%. Unsurprisingly, samples submitted from adult (AHY) gobblers had the highest balanced accuracy—the arithmetic mean between sensitivity and specificity—of 92%. Hatch year (HY) hens had the second highest balanced accuracy (71%), followed by HY gobblers (65%) and finally AHY hens (63%). Hatch year and AHY hens had the lowest and second lowest specificity scores, respectively, meaning that there were more false positives for female classes than male classes. For example, 99% of the gobblers submitted as gobblers were indeed gobblers. Only 78% of juvenile hens, by contrast were accurately identified as such. Overall, the age/sex class that was most often incorrectly identified was HY males. Of the 50 HY male samples submitted, 42% were telechecked as AHY females, 36% were accurately identified and 22% were telechecked as HY females. The final takeaway from these preliminary data is that the ratio of harvested males to females was about 60:40. The average male:female ratio, historically, has been around 40:60 according to hunter reported Telecheck records. Whether this inversion was an aberration brought on by a relatively small sample size or not should become clearer over the final two years of the project.

APPENDIX A.

2023 Missouri spring turkey harvest (youth and regular seasons combined).

County	Adult Males	Subadult Males	Bearded Hens	Total	Rank[a]
Adair	479	66	1	546	22
Andrew	122	15	2	139	104
Atchison	151	29	0	180	97
Audrain	136	35	0	171	100
Barry	115	81	2	198	94
Barton	258	49	1	308	73
Bates	239	56	4	299	75
Benton	470	100	5	575	21
Bollinger	399	108	5	512	28
Boone	495	89	10	594	20
Buchanan	108	14	0	122	110
Butler	88	16	1	105	112
Caldwell	266	57	3	326	67
Callaway	689	157	4	850	3
Camden	611	61	7	679	12
Cape Girardeau	398	108	9	515	25
Carroll	303	51	5	359	54
Carter	161	47	0	208	90
Cass	259	94	3	356	57
Cedar	419	82	6	507	29
Chariton	282	46	2	330	66
Christian	312	101	3	416	48
Clark	302	51	2	355	58
Clay	117	21	0	138	105
Clinton	99	27	1	127	107
Cole	413	71	4	488	33
Cooper	299	48	2	349	60
Crawford	573	85	4	662	13
Dade	251	60	2	313	71
Dallas	407	98	2	507	30
Daviess	450	61	3	514	26
Dekalb	170	38	1	209	89
Dent	567	69	10	646	15
Douglas	364	73	4	441	42
Dunklin	15	5	1	21	114
Franklin	875	150	9	1034	1
Gasconade	691	115	10	816	5
Gentry	213	16	0	229	58
Greene	525	117	11	653	14
Grundy	286	42	4	332	64

County	Adult Males	Subadult Males	Bearded Hens	Total	Rank[a]
Harrison	641	76	6	723	9
Henry	332	88	2	422	45
Hickory	344	44	4	392	52
Holt	193	27	0	220	86
Howard	284	60	6	350	59
Howell	256	73	2	331	65
Iron	152	34	2	188	96
Jackson	161	28	2	191	95
Jasper	254	65	2	321	68
Jefferson	409	78	7	494	32
Johnson	358	94	4	456	37
Knox	209	34	2	245	83
Laclede	609	128	9	746	8
Lafayette	178	41	0	219	87
Lawrence	320	94	7	421	46
Lewis	190	58	3	251	82
Lincoln	315	88	4	407	49
Linn	414	51	2	467	35
Livingston	394	51	4	449	40
Macon	546	143	6	695	10
Madison	183	47	2	232	84
Maries	582	95	12	689	11
Marion	199	51	3	253	81
McDonald	92	26	0	118	111
Mercer	445	48	3	496	31
Miller	646	117	6	769	7
Mississippi	112	10	1	123	109
Moniteau	356	57	5	418	47
Monroe	332	107	5	444	41
Montgomery	341	79	10	430	44
Morgan	393	75	4	472	34
New Madrid	103	21	0	124	108
Newton	110	44	3	157	102
Nodaway	151	24	1	176	98
Oregon	216	55	2	273	78
Osage	753	98	13	864	2
Ozark	212	65	1	278	77
Pemiscot	83	11	0	94	113
Perry	359	86	6	451	39
Pettis	253	42	0	295	76

County	Adult Males	Subadult Males	Bearded Hens	Total	Rank[a]
Phelps	716	88	8	812	6
Pike	291	61	5	357	56
Platte	176	28	2	206	92
Polk	397	66	4	467	36
Pulaski	523	89	6	618	18
Putnam	527	87	3	617	19
Ralls	227	37	2	266	79
Randolph	295	61	2	358	55
Ray	142	33	0	175	99
Reynolds	170	33	0	203	93
Ripley	159	47	1	207	91
Saint Charles	254	51	2	307	74
Saint Clair	46	77	7	514	27
Saint Francois	259	86	2	647	61
Saint Louis	109	22	1	132	106
Sainte Genevieve	526	103	4	633	17
Saline	256	63	2	321	69
Schuyler	298	40	5	343	62
Scotland	343	38	3	384	53
Scott	127	32	4	163	101
Shannon	343	53	4	400	50
Shelby	163	46	3	212	88
Stoddard	222	85	5	312	72
Stone	195	60	2	257	80
Sullivan	567	66	7	640	16
Taney	274	69	0	343	63
Texas	718	122	5	845	4
Vernon	423	103	10	536	23
Warren	334	60	6	400	51
Washington	382	68	5	455	38
Wayne	234	81	2	317	70
Webster	333	104	4	441	43
Worth	138	17	1	156	103
Wright	422	111	2	535	24

[a]Rank based on total harvest in Missouri's 114 counties.

APPENDIX B.

2022 Missouri fall turkey harvest (firearms and archery seasons combined).

County	Adult Males	Subadult Males	Adult Females	Subadult Females	Total	Rank[a]
Adair	16	4	14	14	48	42
Andrew	1	4	0	1	6	111
Atchison	2	0	6	1	9	105
Audrain	3	2	5	11	21	86
Barry	5	3	3	6	17	90
Barton	4	0	9	3	16	93
Bates	8	3	6	8	25	79
Benton	13	9	15	16	53	36
Bollinger	8	8	19	21	56	32
Boone	6	10	25	15	56	33
Buchanan	2	2	4	0	8	108
Butler	10	6	10	8	34	64
Caldwell	4	4	6	0	14	96
Callaway	31	6	37	19	93	10
Camden	11	8	24	19	62	25
Cape Girardeau	17	6	15	9	47	45
Carroll	7	5	11	7	30	68
Carter	10	10	27	23	70	20
Cass	13	1	22	3	39	55
Cedar	14	13	17	14	58	30
Chariton	8	5	8	6	27	76
Christian	11	6	17	4	38	57
Clark	10	1	7	6	24	81
Clay	7	0	4	1	12	101
Clinton	4	1	2	2	9	106
Cole	19	9	22	25	78	17
Cooper	9	2	17	7	35	63
Crawford	33	17	38	59	147	2
Dade	4	1	14	11	30	69
Dallas	15	5	20	14	54	35
Daviess	11	4	15	13	43	50
Dekalb	7	1	4	5	17	91
Dent	26	21	55	44	146	3
Douglas	11	9	13	15	48	43
Dunklin	0	0	1	0	1	114
Franklin	26	9	47	30	112	5
Gasconade	37	13	29	29	108	7
Gentry	6	3	6	10	25	80
Greene	34	13	25	14	86	14

County	Adult Males	Subadult Males	Adult Females	Subadult Females	Total	Rank[a]
Grundy	7	1	1	2	11	103
Harrison	20	4	14	7	45	48
Henry	9	12	16	14	51	39
Hickory	11	13	14	9	47	46
Holt	6	1	4	3	14	97
Howard	6	0	10	6	22	84
Howell	17	11	11	9	48	44
Iron	14	8	26	17	65	22
Jackson	6	1	12	2	21	87
Jasper	7	1	17	3	28	74
Jefferson	19	11	25	17	72	18
Johnson	10	5	13	3	31	67
Knox	7	2	8	4	21	88
Laclede	24	16	38	26	104	8
Lafayette	5	3	6	3	17	92
Lawrence	10	6	18	6	40	54
Lewis	7	1	6	12	26	78
Lincoln	13	15	22	12	62	26
Linn	10	6	21	10	47	47
Livingston	5	3	16	13	37	61
Macon	16	9	13	13	51	40
Madison	7	8	15	25	55	34
Maries	21	23	32	25	101	9
Marion	9	1	8	5	23	82
McDonald	2	1	2	0	5	112
Mercer	17	4	8	8	37	62
Miller	14	7	14	22	57	31
Mississippi	4	1	4	0	9	107
Moniteau	8	6	12	4	30	70
Monroe	20	8	21	11	62	27
Montgomery	20	7	14	1	52	38
Morgan	16	7	29	13	65	23
New Madrid	0	0	5	0	5	113
Newton	3	4	6	0	13	99
Nodaway	2	3	3	4	12	102
Oregon	6	7	6	11	30	71
Osage	32	9	29	42	112	6
Ozark	3	1	5	6	115	94
Pemiscot	3	1	5	6	15	94

County	Adult Males	Subadult Males	Adult Females	Subadult Females	Total	Rank[a]
Perry	14	9	20	19	62	28
Pettis	10	2	6	5	21	83
Phelps	12	21	36	21	90	11
Pike	8	1	14	6	29	72
Platte	12	2	7	6	27	77
Polk	6	6	20	7	39	56
Pulaski	20	16	23	18	77	15
Putnam	30	3	13	15	61	29
Ralls	7	5	12	5	29	73
Randolph	13	4	12	9	38	58
Ray	5	0	6	3	14	98
Reynolds	13	8	10	12	43	51
Ripley	6	2	4	3	15	95
Saint Charles	10	10	14	11	45	49
Saint Clair	12	15	21	16	64	24
Saint Francois	17	14	23	33	87	12
Saint Louis	14	1	20	3	38	59
Sainte Genevieve	26	4	31	26	87	13
Saline	4	0	7	2	13	100
Schuyler	6	2	9	5	22	85
Scotland	9	2	4	3	18	89
Scott	2	1	4	1	8	110
Shannon	15	15	23	23	76	16
Shelby	10	3	9	6	28	75
Stoddard	21	12	18	16	69	21
Stone	12	2	22	6	42	53
Sullivan	11	2	14	7	34	65
Taney	4	4	21	3	32	66
Texas	35	17	46	21	119	4
Vernon	18	4	14	7	43	52
Warren	13	9	18	9	49	41
Washington	45	22	40	41	148	1
Wayne	18	12	28	14	72	19
Webster	21	9	15	8	53	37
Worth	4	1	3	2	10	104
Wright	9	8	17	4	38	60

[a]Rank based on total harvest in Missouri's 114 counties.

Missouri Department of Conservation
2023